

What is claimed is:

1. A multilayer RF module, comprising:  
a plurality of vertically stacked ceramic layers  
5 including a first to a third ceramic layers,  
wherein each of the first and the third ceramic layers  
has a circuit component thereon and the second ceramic layer  
is located between the first and the third ceramic layers  
and is provided with at least one or more air cavities  
10 filled with air, the air cavities being vertically aligned  
with the circuit components of the first and the third  
ceramic layers.
2. The multilayer RF module of claim 1, wherein the air  
15 cavities have a cylindrical shape.
3. The multilayer RF module of claim 2, wherein the air  
cavities have a diameter smaller than 100 to 500  $\mu\text{m}$ .
- 20 4. The multilayer RF module of claim 1, wherein the  
circuit component is a metal pattern.
5. A method for fabricating a multilayer RF module,  
comprising the steps of:  
25 preparing at least three green sheets;  
forming at least one air cavity on one of said at

least three green sheets;

forming a circuit components on each of two remaining green sheets;

stacking said at least three green sheets to thereby  
5 form a laminated green sheet structure, wherein the air cavity is located between the circuit components on said two remaining green sheets; and

pressing and sintering the laminated green sheet structure.

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6. The method for fabricating a multilayer RF module of claim 5, wherein said at least one air cavity has a cylindrical shape.

15 7. The method for fabricating a multilayer RF module of claim 6, wherein the air cavity has a diameter smaller than about 100 to 500  $\mu\text{m}$ .

8. The method for fabricating a multilayer RF module of  
20 claim 5, wherein the laminated green sheet structure pressing step is carried out at a temperature of about 70 °C and at a pressure of about 2500 - 2700 psi for about 10 min.

9. The method for fabricating a multilayer RF module of  
25 claim 5, wherein the circuit component is a metal pattern.